Duhok Polytechnic University

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Department of CIS

LAB 5: Multi-child Layouts

MOBILE APPLICATION

Objectives

Array-Based UI

Vertical Architecture

Horizontal Architecture

Depth & Overlays

Multi-Child Overview

Multi-child layout widgets are containers designed to hold an array of widgets simultaneously. While Lab 4 focused on single-child "wrappers," Lab 5 focuses on how widgets relate to their siblings. These widgets use the children property, which accepts a List [].

Key Attributes:

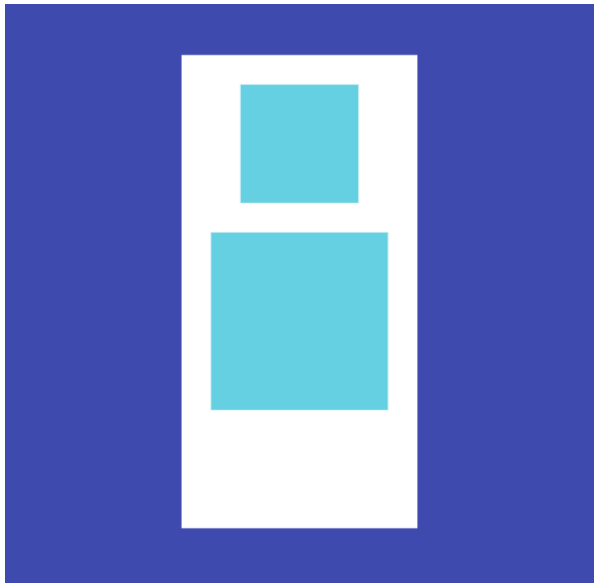
- children: A list of widgets to be displayed (e.g., [Text('A'), Icon(Icons.star)]).
- mainAxisAlignment: Determines how children are spaced along the primary axis (Vertical for Column, Horizontal for Row).
- crossAxisAlignment: Determines how children are aligned on the opposite axis.

Column

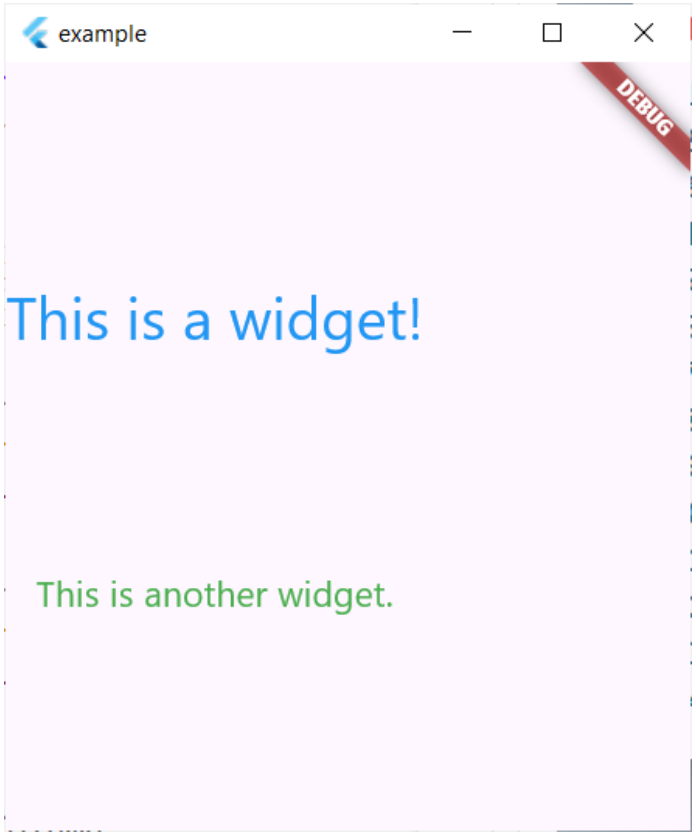
The Column widget is the vertical backbone of Flutter. It stacks its children one after another from top to bottom. It takes up as much vertical space as possible by default, but only as much width as its widest child.

Key Attributes:

- mainAxisAlignment: Vertical distribution (e.g., MainAxisAlignment.start, center, spaceBetween).
- crossAxisAlignment: Horizontal alignment (e.g., CrossAxisAlignment.start to align all items to the left).
- mainAxisSize: Set to MainAxisSize.min if you want the Column to only be as tall as its content.



Column Example

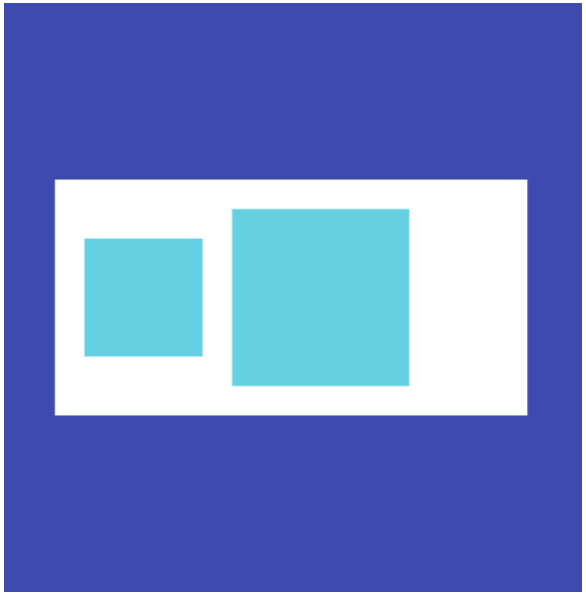


Row

The Row widget is the horizontal equivalent of the Column. It lays out children in a straight line from left to right. It is perfect for headers, star ratings, or placing an icon next to a label.

Key Attributes:

- mainAxisAlignment: Horizontal distribution (e.g., MainAxisAlignment.end to push items to the right).
- crossAxisAlignment: Vertical alignment (e.g., CrossAxisAlignment.center to vertically align different-sized items).
- textDirection: Useful for RTL (Right-to-Left) languages like Arabic.



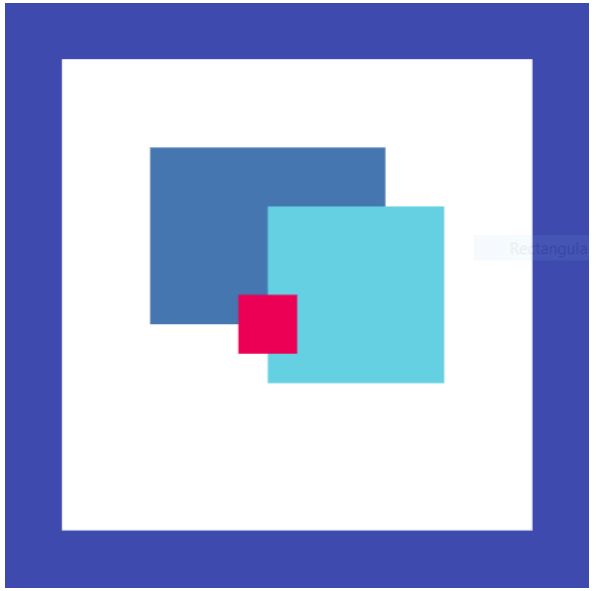
Row Example

Stack

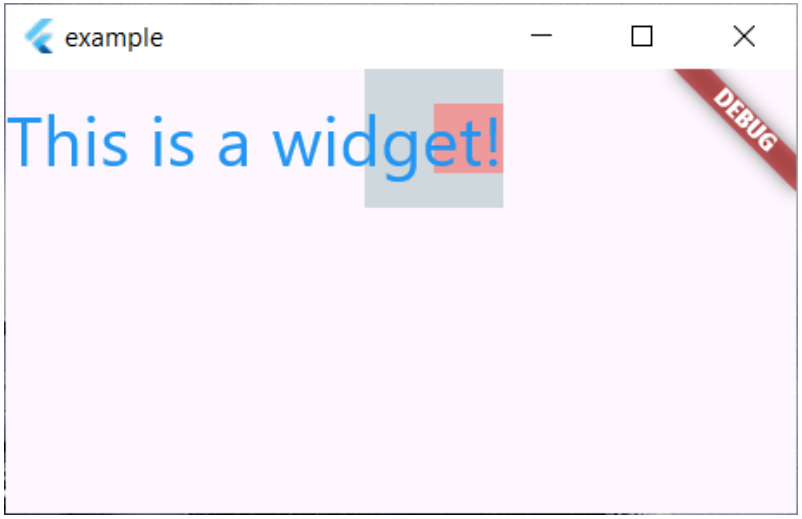
The Stack widget allows you to overlap widgets. Think of it as a z-axis layout. The first child in the list is the bottom layer, and the last child is the top layer. This is how you place text over an image or a notification badge on an icon.

Key Attributes:

- children: The order matters! The last item in the list appears on top of everyone else.
- alignment: Moves all children to a specific starting position.
- fit: Determines if the children should resize to fill the Stack's space (StackFit.expand).



Stack Example



Any Questions?

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